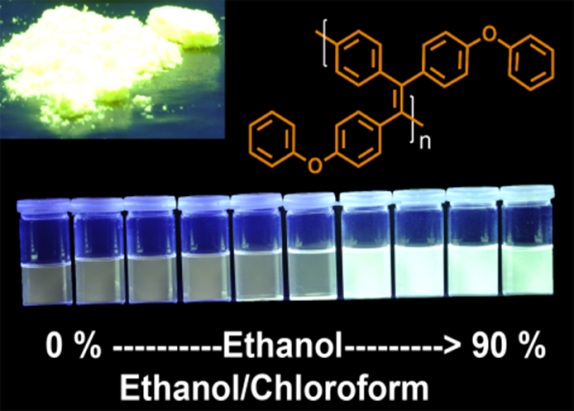
**-Conjugated 1D and 2D Polymers**

Ullrich Scherf

*Chemistry Department, BUWMakro group, and Institute for Polymer Technology, Bergische Universität Wuppertal (BUW), Gauss-Str. 20, D-42119 Wuppertal, Germany*

*Email:* [*scherf@uni-wuppertal.de*](mailto:scherf@uni-wuppertal.de)



*Figure 1:*

AEE-active poly(*para*-phenylene-diphenylvinylene) derivative with solid state photoluminescence quantum yields near unity

The lecture presents some recent, synthesis-driven approaches from our synthetic polymer chemistry group on control and tuning of optical, electronic and morphological properties of -conjugated (co)polymers. The examples involve: (i) novel conjugated ladder polymers,1,2 (ii) conjugated polymers with aggregation-enhanced emission (AEE) properties (see Figure 1),3,4 and (iii) conjugated polyelectrolytes (CPEs).5-11

References

1. A. Rudnick, K. J. Kass, E. Preis, U. Scherf, H. Bässler, A. Köhler, *J. Chem. Phys.* **2017**, *146*, 174903.
2. K.-J. Kass, M. Forster, U. Scherf, *Angew. Chem. Int. Ed.* **2016**, *55*, 5816.
3. W. Dong, T. Fei, A. Palma-Cando, U. Scherf, *Polym. Chem.* **2014**, *5*, 4048.
4. S. Baysec, E. Preis, U. Scherf, *Macromol. Rapid. Commun.* **2016**, *37*, 1802.
5. G. Tu, H. Li, M. Forster, R. Heiderhoff, L. J. Balk, R. Sigel, U. Scherf, *SMALL* **2007**, *3*, 1001.
6. A. Gutacker, S. Adamczyk, A. Helfer, L. E. Garner, R. C. Evans, S. M. Fonseca, M. Knaapila, G. C. Bazan, H. D. Burrows, U. Scherf, *J. Mater. Chem.* **2010**, *20*, 1423.
7. M. Knaapila, R. C. Evans, V. M. Garamus, L. Almásy, N. K. Székely, A. Gutacker, U. Scherf, H. D. Burrows, *Langmuir* **2010**, *26*, 15634.
8. M. Kraft, S. Adamczyk, A. Polywka, K. Zilberberg, C. Weijtens, J. Meyer, P. Görrn, T. Riedl, U. Scherf, *ACS Appl. Mater. Interfaces* **2014**, *6*, 11758.
9. J. E. Houston, M. Kraft, I. Mooney, A. E. Terry, U. Scherf, R. C. Evans, *Langmuir* **2016**, *32*, 8141.
10. J. E. Houston, M. Kraft, U. Scherf, R. C. Evans, *Phys. Chem. Chem. Phys.* **2016**, *18*, 12423.
11. A. Pipertzis, M. Mühlinghaus, M. Mezger , U. Scherf, G. Floudas, *Macromolecules* **2018**, *51* (16), pp 6440–6450